

REMARKS

Claims 1-3 and 7-23 are all the claims presently pending in the application.

Claims 1, 11, and 19 have been amended to define more clearly and particularly the claimed invention, in accordance with the personal interview conducted on January 11, 2005.

Claim 17 is amended to make a minor editorial change (e.g., to include a missing end parenthesis). Claims 22 and 23 have been added to provide more varied protection for the present invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

I. THE 35 U.S.C. §112, SECOND PARAGRAPH REJECTION

Claims 1-3 stand rejected under 35 U.S.C. §112, second paragraph, because all of the features of claims 1-3 allegedly are not shown in the drawings.

In the interview conducted on January 11, 2005, the Examiner stated that new/revised drawings would be needed to clearly show each of the additional features of the claimed invention including “*a film including a polycrystalline metal*”, as defined by claims 1- 3 and 7-23, to avoid another rejection under 35 U.S.C. § 112 and to facilitate a more relevant search of the prior art.

The Examiner kindly agreed that new drawings which clearly show these aspects of the claimed invention, as originally disclosed in the specification and claims of the application, would be entered and would not raise issues of new matter.

The Examiner stated that he would revise his search based on the further description of the claimed “polycrystalline metal” and the new drawings submitted by Applicants.

As requested by the Examiner in the personal interview conducted on January 11, 2005, Applicants submit herewith a Replacement Sheet for proposed new Figures 7(A)-7(F), which exemplarily illustrate cross-sectional views, plan-views, and dark-field plan-views of a Pt film deposited on a p-GaN substrate at room temperature (e.g., see Figures 7(A), 7(C), and 7(E)) and at 573 K (e.g., see Figures 7(B), 7(D), and 7(F)), according to the present invention.

Applicants submit that all of the features of the claimed invention are clearly shown in the Figures, as amended.

For example, Figures 7(A)-7(F) exemplarily illustrate the features of the claimed invention, as described in the original specification, including a polycrystalline metal including a fiber structure in which crystal planes of crystal grains are oriented (e.g., oriented crystal planes of crystal grains) (e.g., as defined by claims 2 and 12) or that the polycrystalline metal includes a fiber structure including oriented crystal faces including closed packed planes (e.g., as defined by claims 10, 15, and 20) (e.g., see specification at page 5, lines 10-12).

Also, Figures 7(A)-7(F) exemplarily illustrate that the polycrystalline metal includes a fiber structure in which a crystal grain boundary density decreases such that a

quantity of defects in the metal/semiconductor boundary decreases (e.g., as defined by claims 7, 11, and 19) (e.g., see specification at page 5, lines 18-21).

Figures 7(A)-7(F) further exemplarily illustrate that the polycrystalline metal includes large crystal grains (e.g., as defined by claim 3) or a predetermined large size (e.g., as defined by claims 13 and 21) or that a degree of said crystal grains of the predetermined large size is no less than a thickness of the polycrystalline metal film (as defined by claim 18) (e.g., see specification at page 12, lines 5-7).

Figures 7(A)-7(F) further exemplarily illustrate that the polycrystalline metal includes a transition metal (e.g., as defined by claims 1, 11, and 19) or that the polycrystalline metal includes one of platinum (Pt), nickel (Ni), palladium (Pd), chromium (Cr), and iron (Fe) (e.g., as defined by claims 17, 22, and 23) (e.g., see specification at page 12, lines 1-5).

Figures 7(A)-7(F) further exemplarily illustrate that a percentage of oriented crystal grains occupying said fiber structure is increased to provide an increase an orientation force of the metal film (e.g., as defined by claims 8 and 14) or that the fiber structure includes a predetermined percentage of oriented crystal grains to provide a predetermined orientation force of the metal film (e.g., as defined by claim 9) (e.g., see specification at page 5, lines 5-10).

Applicants also respectfully submit that the features of the claimed invention, for example, as defined by claims 8 and 9, are readable and understandable from the specification, particularly, as set forth in Tables 1 and 2, which show XRD peak intensity and the half-value width of (111).

For example, according to Tables 1 and 2, a sample that is vapor-deposited on the heated substrate has a highest intensity than others, and has narrower half-

value width. The intensity of (111) can be regarded as a volume of a crystal grain that is (111) oriented in a vertical direction to the substrate.

Thus, it is clear that the film formed by a method of substrate heating and vapor deposition has a stronger (e.g., strongest) (111) orientation force.

Incidentally, Applicants note that, as the half-value width becomes narrow, the particle size of a crystal grain is considered to become large. Thus, the film formed by a method of substrate heating and vapor deposition has large particle size of the crystal grain.

Therefore, as described in the original specification (e.g., see page 8, line 14 to page 11, lines 21), the feature of claims 8 and 9 clearly are explained in the specification such that the ordinarily skilled artisan would understand the claimed invention and know the metes and bounds of the claimed invention with reference to Figures 6 and 7(A)-7(F), as submitted herewith.

As the Examiner agreed in the personal interview of January 11, 2005, no new matter is added because the features of the claims were originally disclosed in the specification and original claims of the application.

Thus, Applicants request that the Examiner enter and approve the Replacement Sheets, as agreed. Applicants also request that the Examiner withdraw the rejection of claim 1-3 under 35 U.S.C. § 112, second paragraph, and permit these claims to pass to immediate allowance.

II. THE PRIOR ART REJECTIONS

Claims 1-3 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yamanaka (U.S. Publication No. 2003/0013280). Claims 1-3 stand rejected under 35

U.S.C. § 102(e) as being anticipated by Washio et al. (U.S. Patent No. 6,600,178; hereinafter “Washio”). Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ito et al. (U.S. Patent No. 6,770,519; hereinafter “Ito”).

In the personal interview conducted on January 11, 2005, Applicant’s representative discussed the novel and unobvious features of the claimed invention, which define “*a film including a polycrystalline metal*”. Particularly, Applicant’s representative explained that the prior art references Yamanaka, Washio, and Ito do not disclose or suggest the claimed “*film including a polycrystalline metal*” as defined by independent claim 1. Instead, each of these references merely discloses a single crystalline silicon thin-film or the like.

The Examiner stated that further description of the claimed “*polycrystalline metal*” would be needed to define more clearly this distinction over the cited references.

Therefore, to define more clearly the features of the invention, Applicant’s representative proposed incorporating the additional feature (e.g., “*wherein said polycrystalline metal comprises a transition metal*”) into independent claims 1, 11, and 19.

Accordingly, independent claims 1, 11, and 19 are amended to define more clearly the features of the invention in accordance with the personal interview conducted on January 11, 2005.

In the personal interview, the Examiner kindly indicated that the additional feature described above appears to define more clearly the features of the present invention, and thus, appears to more clearly distinguish the present invention from the cited references, but that further consideration would be needed to determine the patentability of the claims.

III. NEW CLAIMS

New claims 22 and 23 also are added to provide more varied protection for the present invention. Applicants submit that new claims 22 and 23 are patentable over the cited references for somewhat similar reasons as claims 1-3 and 7-21.

Accordingly, the examiner respectfully is requested to permit new claims 22 and 23 to pass to allowance.

IV. CONCLUSION AND FORMALITIES

In the personal interview conducted on January 11, 2005, the Examiner maintained the objections to the drawings as not showing every feature of the invention specified in claims 1-3 (see also rejection of claims 1-3 under 35 U.S.C. § 112, second paragraph).

As requested by the Examiner in the personal interview conducted on January 11, 2005, Applicant submits a Replacement Sheet for Figure 6, which was filed on January 6, 2005, with reference numerals only (i.e., without text),

As requested by the Examiner in the personal interview conducted on January 11, 2005, Applicant also submits a Replacement Sheet for proposed new Figures 7(A)-7(F), which exemplarily illustrate cross-sectional views, plan-views, and dark-field plan-views of a Pt film deposited on a p-GaN substrate at room temperature (e.g., see Figures 7(A), 7(C), and 7(E)) and at 573 K (e.g., see Figures 7(B), 7(D), and 7(F)), according to the present invention. No new matter is added.

The Examiner respectfully is requested to acknowledge receipt of and approve the replacement sheets for Figures 6 and 7(A)-7(F).


In view of the foregoing, Applicant submits that claims 1-3 and 7-23, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: MARCH 1, 2005


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AMENDMENTS TO THE DRAWINGS

Applicants submit a replacement sheet for Figure 6, which was filed on January 6, 2005, with reference numerals only, as requested by the Examiner in the personal interview conducted on January 11, 2005.

Applicants also submit a Replacement sheet for proposed new Figures 7(A)-7(F), which exemplarily illustrate cross-sections, plan-views, and dark-field pan-views of a Pt film deposited on a p-GaN substrate at room temperature and at 573 K, according to the present invention, as requested by the Examiner in the personal interview conducted on January 11, 2005. No new matter is added.

The Examiner respectfully is requested to acknowledge receipt of and approve the replacement sheets for Figures 6 and 7(A)-7(F).

Attachments: Replacement Sheets (2)